of those who are familiar with earlier accounts. As G. G. Simpson says in his foreword, all will "applaud Leakey's decision to bring out the present strictly preliminary publication, and will admire the energy and devotion that have given us so prompt and useful a record of results up to 1962." Further volumes in the series are awaited with great interest.

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Mathematics

Special Functions and Their Applications. N. N. Lebedev. Translated from the revised Russian edition (Moscow, 1963) by Richard A. Silverman. Prentice-Hall, Englewood Cliffs, N.J., 1965. xii + 308 pp. Illus. $16.

This book may be strongly recommended either for reference purposes or as a textbook for use in a graduate course in special functions. The development is clear, readable, economical, and efficient. For reference purposes the book is surprisingly complete. The student will find himself learning a great deal of analysis with the minimum of trouble.

Considerable attention is given to applications of the special functions studied. A list of problems is given at the end of each chapter. Many asymptotic expansions of special functions are needed in the applications. The derivations given are unusually concise.

Chapter 1, "The gamma function," includes a derivation of the leading term of Sterling's formula. Chapter 2, "The probability integral and related functions," includes application to heat conduction and to the theory of transverse vibrations of an infinite rod. Chapter 3, "The exponential integral and related functions," includes an application to the electromagnetic radiation from a linear half-wave oscillator. Chapter 4, "Orthogonal polynomials," gives a general theory of orthogonal polynomials, including many specific results for Legendre polynomials, Hermite polynomials, and Laguerre polynomials. The latter are applied to the theory of image transmission of transients in a long transmission line.

Chapter 5 is, for this type of volume, a rather complete treatment of cylindrical functions, including Bessel functions and modified Bessel functions of both types and Hunkel functions, as well as one section on Airy functions. Chapter 6 gives some of the many applications of cylindrical functions, particularly applications to several Dirichlet problems.

Chapters 7 and 8 are concerned with spherical harmonics and their applications. Further properties of Legendre functions are developed. Dirichlet problems feature heavily in the applications. Laplace's equation is separated in spherical and spheroidal coordinates. It is also solved in toroidal and bipolar coordinates, a valuable feature of the book.

A good general theory of hypergeometric functions is given in chapter 9. In chapter 10 Laplace's equation is separated in parabolic cylindrical coordinates; the solutions are expressed in terms of Hermite functions. These are used in the Dirichlet problem for a parabolic cylinder, and in the quantum mechanical study of a harmonic oscillator.

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Missile and Space Technology

Space Science and Engineering. Ernst Stuhlinger and Gustav Mesmer, Eds. McGraw-Hill, New York, 1965. xxviii + 457 pp. Illus. $20.

This book is based on a series of lectures that cover space engineering science; the lectures were given to graduate-level students, during 1960 and 1961, at Washington University (St. Louis, Mo.) by staff members of the Marshall Space Flight Center (Huntsville, Ala.). It takes considerable courage to issue a survey textbook in a field that is enlarging and changing as rapidly as the field of space science and technology. Certainly the treatment of basic physics, astronomy, and chemistry in the various chapters is as sound and appropriate now as when the chapters were written. On the other hand, a number of statements that describe the space environment, the moon, and Mars, as well as some concerned with power, instrumentation, and propulsion technology, were very obviously written before reports on recent developments were available—the Ranger closeups of the moon or the Mariner views of the surface of Mars, and developments made during the past year on bombardment ion thrustors, for example. But this is inevitable in a field where knowledge is increasing at such a pace.

The book contains a voluminous amount of interesting information intended to give the physical scientist and engineer a peek at some of the many disciplines and areas involved. It is also worthwhile reading for those who are knowledgeable in the space program, because workers tend to specialize and not to diversify their interests among allied areas to the extent that they should.

I am most tempted to criticize the book on the basis of the selection and interconnection of the wide variety of specific topics and examples in the individual chapters. Although the detailed organization of the book appears to be an arbitrary potpourri of topics, personal contact with and respect for the Stuhlinger group at Huntsville force me to recognize at least two bases for such a feeling. First, a survey course cannot mention everything, much less provide discussion in depth. Second, every person who reviews a book of this type in his own field would have organized such a course differently and written a different book.

In summary, I certainly recommend this work to the scientific worker who is interested in a glimpse of the variety of scientific and technological disciplines and to the experienced worker who works in some area of the field.

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African Wildlife Today

Rhinos Belong to Everybody. Bernhard Grzimek. Translated from the German edition (Frankfurt, 1962) by Oliver Coburn. Hill and Wang, New York, 1965. 207 pp. Illus. $12.50.

In this fine book the well-known director of the Frankfurt Zoo, with his intimate understanding of wild animals in their African habitat, gives a clear picture of what to expect when one visits East Africa today. The book is outstanding, not only because of the quality of his vivid and superb photographs (of which more than 60 are in color), but because the text de-